

IOWA DEPARTMENT OF PUBLIC HEALTH

DIVISION OF ACUTE DISEASE PREVENTION EMERGENCY RESPONSE & ENVIRONMENTAL HEALTH

BUREAU OF IMMUNIZATION AND TUBERCULOSIS

IOWA
Immunization Program

2017 Annual Report

Iowa Department of Public Health

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Introduction

The mission of the Iowa Department of Public Health (IDPH) Immunization Program is to decrease vaccine-preventable diseases through education, advocacy and partnership.

While immunization rates in Iowa are consistent with or exceed national averages, pockets of un-immunized populations leave children and their communities vulnerable to infectious diseases. All health care providers are critical to achieve and maintain high vaccination rates. Studies consistently indicate a health care provider recommendation is the single strongest predictor of vaccination status. The IDPH Immunization Program provides immunization services throughout the state and includes the following programs: Adolescent Immunization, Adult Immunization, Immunization Registry Information System, Vaccines for Children, Perinatal Hepatitis B and Immunization Assessment.

This report provides a summary of the activities and achievements of the IDPH Immunization Program and Iowa health care providers during 2017. In addition, the report serves as an annual informational resource for stakeholders, local partners, policy makers and the general public. Iowa-specific immunization coverage rates, funding sources and program-specific data appear in tables and maps throughout the report. These tables and maps demonstrate not only immunization coverage levels, but also the collaboration and tremendous work being done at the local level by public and private health care providers.

Immunization Program Funding

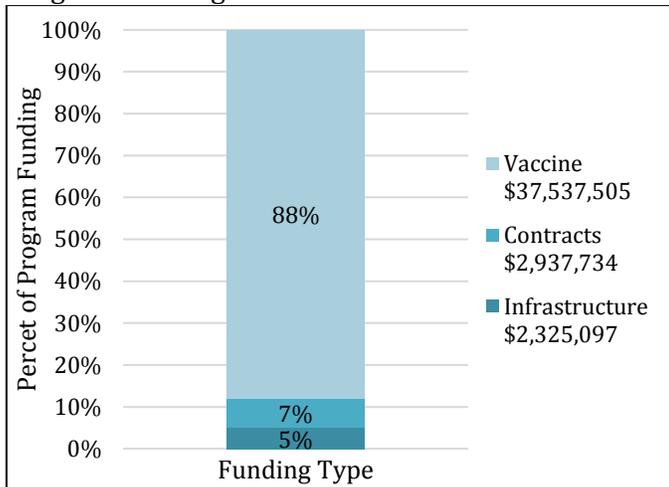
In calendar year 2017, the Immunization Program received funds from the federal Vaccines for Children Program (VFC), federal 317 grant program, state funds and Federal Prevention and Public Health Funds (PPHF) totaling \$42,800,336 (Table 1).

Table 1: Calendar Year 2017 Total Program Funds

Funding Source	Calendar Year 2017
Immunization Federal	\$4,159,076
State	\$321,593
Federal PPHF Grants	\$782,162
VFC Vaccine	\$36,482,022
317 Vaccine	\$552,481
State Vaccine	\$503,002
Total	\$42,800,336

Program expenditures are divided into three main categories: **vaccine purchases, contracts** with local public health agencies and immunization service providers and **program infrastructure** (staff salary and operating expenses). The funding distribution for these three categories is illustrated in Figure 1.

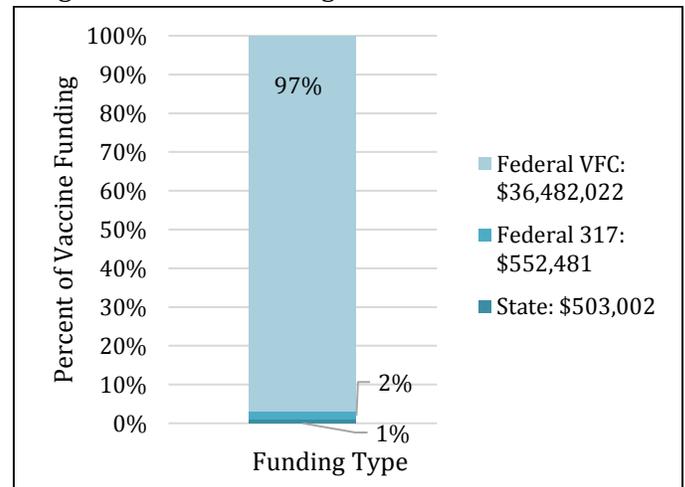
Figure 1: Calendar Year 2017 Immunization Program Funding Distribution



Vaccine Funds

The Immunization Program completes annual population estimates and vaccine forecasting for Iowa’s population, which is used by the Centers for Disease Control and Prevention (CDC) to determine vaccine funding for the upcoming year. The Immunization Program received funding for vaccines from the federal VFC Program, federal 317 grant vaccine funds and state funds. Figure 2 includes the vaccine funding distribution for calendar year 2017. Of the program’s \$42.8 million dollar 2017 budget, more than \$37 million was spent on vaccines.

Figure 2: Calendar Year 2017 Immunization Program Vaccine Funding Distribution



In 2017, Iowa received \$36,482,022 from the federal VFC Program for vaccine. These funds account for 97 percent of the program’s total vaccine budget. These funds are used to immunize children birth through 18 years of age who meet the following eligibility: Medicaid enrolled, uninsured, underinsured, American Indian or Alaskan Native.

In calendar year 2017, Iowa received \$552,481 in 317 grant funds, which comprises two percent of the program's total vaccine budget. In 2017, Iowa used federal 317 grant funds to vaccinate underinsured children served by select public health agencies.

Immunization Education

2017 Immunization Summit

Epidemiology and Prevention of Vaccine-Preventable Diseases – Pink Book Course

Over 650 health care professionals attended the 2017 Immunization Summit held in Des Moines on June 14-15, 2017. An Epidemiology and Prevention of Vaccine-Preventable Diseases - Pink Book Course was held June 14, 2017. Speakers included JoEllen Wolicki, RN, BSN- Nurse Educator, National Center for Immunization and Respiratory Diseases, CDC; Dr. Andrew Kroger, MD, MPH- Medical Officer: Education, Information and Partnership Branch, Immunization Services Division, National Center for Immunization and Respiratory Diseases, CDC; and Dr. Jean Clare Smith, MD, MPH- Medical Officer, Assistant to the Director for Immunization Policy, Immunization Services Division, National Center for Immunization and Respiratory Diseases, CDC. The course included a comprehensive overview of the principles of vaccination, general recommendations, immunization strategies for providers, and specific information about vaccine-preventable diseases and the vaccines that prevent them. All participants received a complimentary copy of the Epidemiology and Prevention of Vaccine-Preventable Diseases, Pink Book 13th Edition.

In 2017, \$503,002 of state funds were used to purchase vaccine, which comprised less than one percent of the program's total vaccine budget. State funds are used to pay for vaccines for children who do not meet VFC eligibility requirements.

HPV Prevention through Partnerships

Public health representatives, health care providers, and other HPV vaccine advocates attended the evening session to discuss prevention initiatives, opportunities to collaborate with partners, and learn what role individuals and organizations play to increase HPV vaccine rates in Iowa. Attendees also learned about the impact of HPV-related cancers from survivors and health care professionals. Featured presenters included: Dr. Emily K. Hill- University of Iowa and Hospitals; Tamika Felder - Founder and President, Tamika and Friends, Inc.; Christy Maternach- American Cancer Society, Senior Manager, State Health Systems; Sara Comstock- American Cancer Society, Health Systems Program Manager - HPV Vaccination; Dr. Steven Rinderknecht- Unity Point Clinic Pediatrics; and Dr. Nathan Boonstra- Blank Children's Pediatric Clinic.

The Iowa Department of Public Health Immunization Program debuted a series of HPV survivor [videos](#) showing the impact of HPV-associated cancer on Iowans. Survivor stories put faces to HPV-associated cancers, while their struggles reinforce the importance of prevention. Survivors shared a common theme of never wanting another person to experience what they have gone through and their struggles emphasize the importance of receiving HPV vaccine.

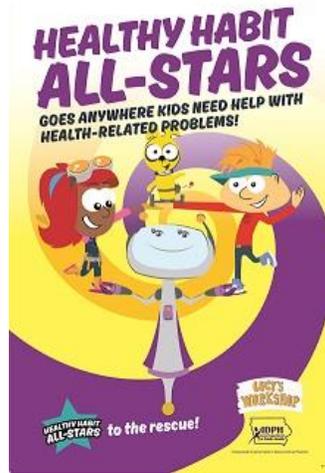
Immunization Conference

The 2017 Iowa Immunization Conference was held June 15, 2017. This conference focused on current immunization information and vaccine education for health care providers. The conference has grown from about 20 local public health agency staff in 1994 to more than 650 attendees. Conference speakers included Dr. Paul A. Offit- Chief of the Division of Infectious Diseases and the Director of the Vaccine Education Center at the Children's Hospital of Philadelphia; Dr. Sean O'Leary - University of Colorado School of Medicine/Children's Hospital Colorado; Dr. Andrew Kroger, MD, MPH- Medical Officer: Education, Information and Partnership Branch, Immunization Services Division, National Center for Immunization and Respiratory Diseases, CDC; Dr. Nathan Boonstra- Blank Children's Pediatric Clinic; Dr. Nitin Pagedar- University of Iowa Hospitals and Clinics; Dr. Steven Rinderknecht- Unity Point Clinic Pediatrics; and Dr. Patricia Quinlisk- Medical Director, Iowa Department of Public Health.

Healthy Habit ALL-STARS

In early 2017, the Bureau of Emergency and Trauma Services (BETS) Emergency Medical Services for Children (EMSC) program began exploring mechanisms to educate children about public health issues, create a positive health culture for children, and empower children to make healthy choices. The EMSC program, the Public Health Emergency Preparedness Program and Hospital Preparedness Program, and the Bureau of Immunization and Tuberculosis collaborated throughout the year to create the Healthy Habit All-Stars. Grant funding for the project was provided through the CDC and Health Resources and Services Administration (HRSA).

This squad of fun, curious and healthy all-stars was designed to assist in educating children about public health topics such as immunizations, reducing the spread of disease and emergency preparedness. In Lucy's Workshop, learning about healthy habits is easy and fun! Lucy's Workshop (aka: a nook in Lucy's parents' garage) is where the Healthy Habits All-Stars hang out. The All-Stars are made up of Lucy, Miss Roberta, Glen and D.O.G.



Lucy created Miss Roberta 3000, an education robot, so she could help kids stay healthy. Whenever a kid has a health-related problem, D.O.G.'s wheelchair antenna lights up and he alerts Glen, Lucy and Miss Roberta to spring into action. Miss Roberta projects a portal to the child with the health problem and the team jumps in to help. Animated videos are used to communicate complex health information to children in an age appropriate manner. "Henry's Shots" was the first video developed. In this video, the Healthy Habits All-Stars help Henry understand how getting vaccinated helps protect his health as well as others in his community.

Staff have shared Healthy Habit All-Stars videos, games and other support materials at school conferences, the Annual School Nurse Conference, The Iowa Immunization Summit and other venues across the state. Since the start of the program, 124 schools have requested the printed materials to share with students, and 16,000 coloring books have been distributed across the state. For more information about the squad and program, see the website at <https://idph.iowa.gov/Healthy-Habits-All-Stars>.

Brochures and Print Materials

The Immunization Program offers educational materials for parents and health care providers. Materials include brochures, school/child care audit forms, reminder/recall postcards, temperature logs, posters and VFC Program forms. Educational materials can be printed or ordered free of charge. Immunization educational materials may be ordered on the Immunization Program website at <https://idph.iowa.gov/immtdb/immunization/order-form>.

Immunization Consultation and Program Updates

The Iowa Immunization Program staff is available Monday through Friday 8:00 a.m. - 4:30 p.m. for consultation regarding program activities, IRIS and immunization-related questions. A directory of immunization staff can be found in Appendix A.

To receive Immunization Program updates directly, recipients can submit their email on the IDPH Immunization webpage at <https://idph.iowa.gov/immtdb/immunization>.

Immunization Registry Information System

Iowa's Immunization Registry Information System (IRIS) is a confidential, computerized repository of individual immunization records from participating public and private health care providers. IRIS includes patient records from all ages and is used to keep patients on schedule for their recommended immunizations by storing immunization records, documenting vaccine contraindications and reactions, validating immunization history, providing vaccine recommendations, producing patient reminder and recall notices, and managing vaccine inventory.



IRIS Trainings

IRIS staff provided 24 webinar trainings throughout 2017. Training opportunities included monthly question and answer sessions in which common questions and specific topics were covered, as well as entry of school and child care audit data into IRIS. Nearly 1,000 IRIS users participated in these trainings.

IRIS Users and Organizations

Enrollment in IRIS is available to all health care providers in Iowa that administer immunizations. In 2017, 187 new organizations enrolled in IRIS for a total of 2,957 participating organizations. Organizations include private health care clinics, local public health agencies, rural health clinics, hospitals, pharmacies, long-term care centers and schools.

Interoperability with IRIS

Since 2013, Iowa has supported data exchange, or interoperability between IRIS and electronic health records systems. As of December 31, 2017, the Immunization Program supported 1,151 organizations exchanging electronic immunization data with IRIS. Of these, 293 are bidirectional, meaning these organizations have the ability to query for patients' immunization histories as well as submit patients' immunization records to IRIS.

IRIS Quick Stats - 2017

- Total number of immunizations in IRIS: **40,358,228**
- Total number of clients/patients in IRIS: **3,910,605**
- Number of organizations enrolled in IRIS: **2,957**
- Total number of active and distinct users: **13,918**
- Total number of organizations sending immunizations or querying IRIS: **1,151**
- Total number of real-time transactions through IRIS: **12,367,781**

AFIX – IIS Funding

Iowa received funds from the Prevention and Public Health Fund (PPHF) to implement functionality for health care providers to conduct their own vaccine coverage assessments within the immunization information system (IIS). Iowa is collaborating with five other states to develop this functionality with technical expertise provided by DXC, the vendor supporting all six states' IIS. Throughout 2017, Iowa worked with DXC to finalize development and test the functionality. Implementation is scheduled for 2018.

IRIS Enhancements

The Immunization Program continuously identifies areas for improvement to IRIS. Each enhancement goes through rigorous testing within three testing regions prior to moving to production for use by end users. In 2017, there were nine releases of functionality which included: new vaccines/vaccine codes, schedule/evaluator updates, data exchange enhancements, school and child care audit reports, and a refugee health module.

IRIS Records

Each year, the volume of records in IRIS with immunizations recorded continues to increase among all age groups as shown in Table 2.

Table 2: Number of Patient Records in IRIS by Year and Age Group

Patients in IRIS by Year*			
Year	Patients in IRIS ages 4 months through 5 years with two or more immunizations recorded	Patients in IRIS ages 11 years through 17 years with 2 or more immunizations recorded	Patients in IRIS over the age of 19 years with 1 or more immunization recorded
2012	211,258	159,968	1,141,659
2013	211,714	176,308	1,171,201
2014	212,487	188,126	1,496,633
2015	215,678	200,446	1,672,148
2016	224,567	216,841	1,682,147
2017	229,861	236,996	2,021,869

*Data as reported in the Immunization Information System Annual Report

Vaccines for Children Program



The Vaccines for Children (VFC) program is a federally funded program established in 1994 to provide vaccines at no cost to eligible children from birth through 18 years of age. Since its establishment and

over a 20-year period, the VFC program has significantly impacted U.S. children:

- Prevented 381 million illnesses
- Helped avoid 855,000 deaths
- Saved nearly \$1.65 trillion in total societal cost (includes \$360 billion in direct costs)

The VFC Program provides vaccine for approximately 51 percent, or 388,566 of Iowa’s children from birth through 18 years of age. Eligible children include those who are enrolled in Medicaid, uninsured, underinsured, American Indian or Alaskan Native. In 2017, the Iowa VFC Program distributed 654,422 doses of vaccine (Table 3), valued at more than \$36 million, to VFC-enrolled health care providers. These vaccines protect babies, children and adolescents from 16 diseases.

Table 3: 2017 VFC Vaccine Doses Distributed

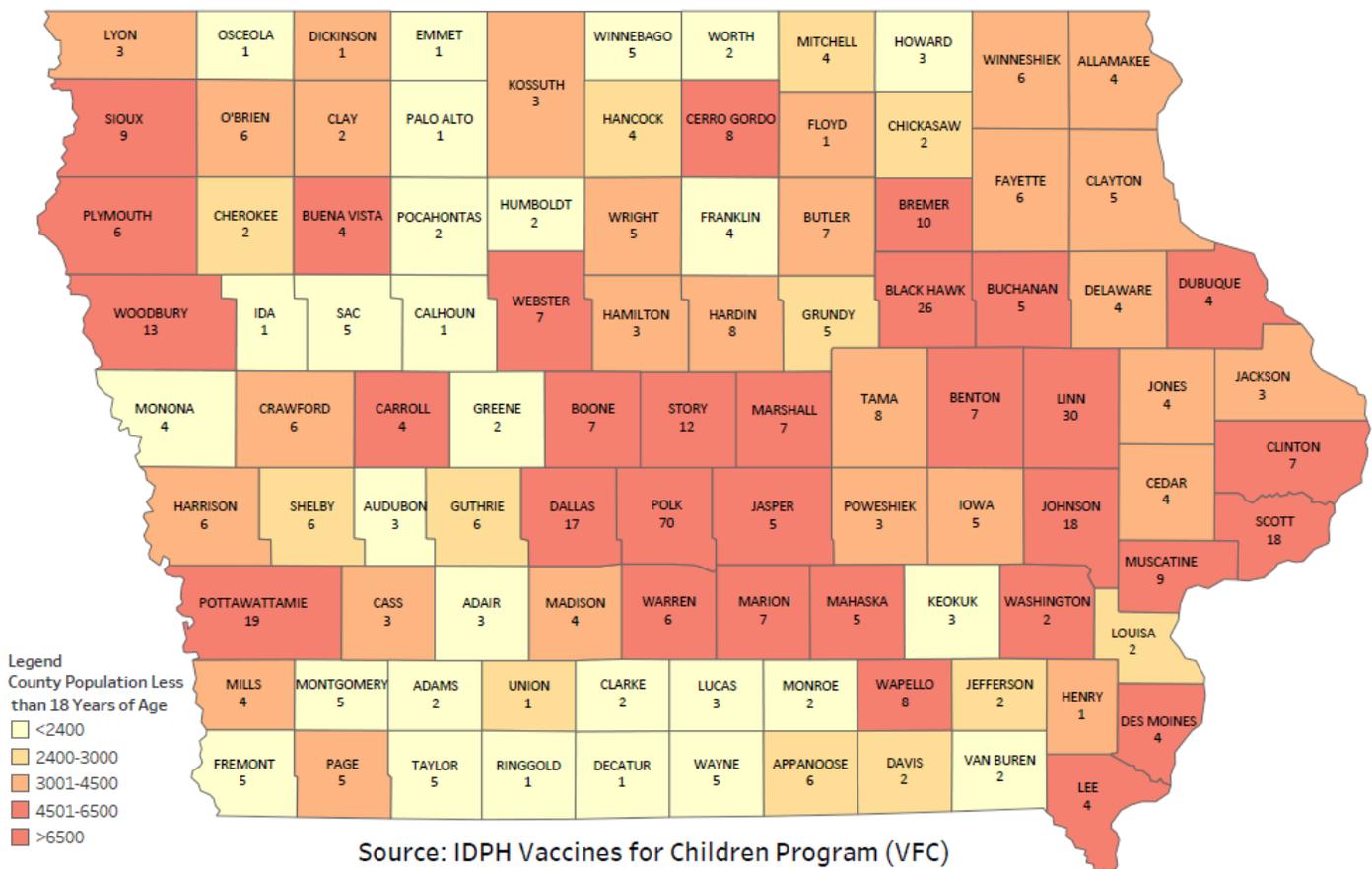
Vaccine	Doses Distributed
DT	30
DTaP	19,580
DTaP-IPV (Kinrix)	16,730
DTaP-IPV/Hib (Pentacel)	16,630
DTaP-IPV-Hep B (Pediarix)	45,190
Tdap	24,360
Td	790
Hep A	51,950
Hep B	29,300
Hep A-Hep B (Twinrix)	820
Hib	50,745
HPV	37,240
IPV	8,700
MMR	23,450
MMR-Varicella (MMRV)	18,020
MCV	37,030
Men B	11,673
PCV 13	74,290
PPSV	14
Rotavirus	47,390
Varicella	24,810
Influenza	115,680
Total Doses Distributed	654,422

Vaccines for Children Program, continued

As of December 31, 2017, IDPH's VFC Program included 596 participating providers. Enrolled providers include local public health agencies, Indian Health Services, Women Infants and Children (WIC) clinics, private health care providers, hospitals, pharmacies, rural health clinics, Federally Qualified Health Centers and family planning clinics.

Each of Iowa's 99 counties has at least one VFC Program provider serving eligible children. Figure 3 includes the number of VFC providers by county and the number of children in the county less than 18 years of age. The number of participating VFC Program providers and the county population of children less than 18 years of age are directly related.

Figure 3: Number of VFC Providers in Iowa by County and Population Less Than 18 Years of Age

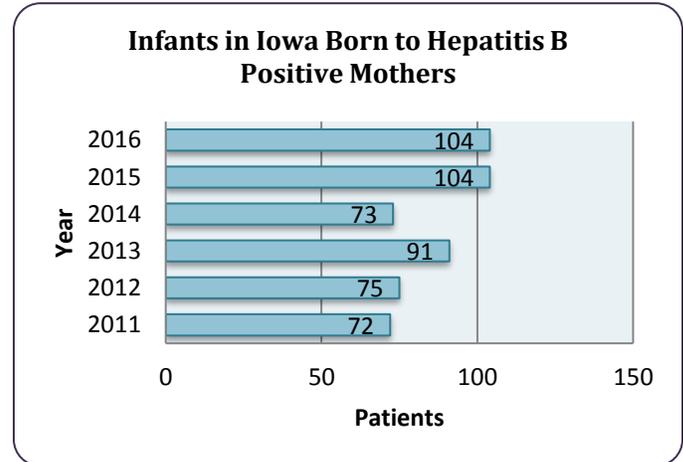


Hepatitis B Program

Perinatal Hepatitis B Prevention Program

Hepatitis B is a serious disease caused by the hepatitis B virus (HBV), which can be transmitted from an infected mother to her infant at birth. IDPH's Perinatal Hepatitis B Program works to prevent transmission of hepatitis B infection from mothers to infants by conducting parent and health care provider education, case management of mothers and babies, distribution of hepatitis B vaccine and hepatitis B immune globulin (HBIG), and laboratory testing. In 2016, there were 104 infants born to hepatitis B infected mothers reported (Figure 4).

Figure 4: Iowa Infants Born to Hepatitis B Positive Mothers



Universal Hepatitis B Vaccine Birth Dose Program

The Immunization Program provides hospitals hepatitis B vaccine to universally administer the birth dose of hepatitis B vaccine to all newborns regardless of insurance coverage. In 2017, 29 of 75 birthing hospitals in Iowa were enrolled in the Universal Hepatitis B Vaccine Birth Dose Program. The 2016 National Immunization Survey (NIS) for hepatitis B vaccine among infants birth to 3 days of age indicates Iowa has a hepatitis B birth dose rate of 71.4 percent, consistent with the national average of 71.1 percent. Iowa ranks 45 out of the 65 assessed immunization projects. The program continues initiatives to increase the number of Iowa infants who receive a birth dose of vaccine. These efforts include the Universal Hepatitis B Vaccine Birth Dose Program, promoting birthing hospitals' enrollment in the VFC Program, and encouraging birthing hospitals to enroll in the Immunization Action Coalition's (IAC) Hepatitis B Birth Dose Honor Roll.

Perinatal Hepatitis B Prevention Champions in Iowa

In 2013, the Immunization Action Coalition (IAC) created the Hepatitis B Birth Dose Honor Roll to recognize hospitals and birth centers that achieved 90 percent or greater coverage rate of administering hepatitis B vaccine to newborns prior to discharge. To protect newborns from hepatitis B viral infection, birthing hospitals that qualify must also implement written policies, procedures and protocols. More information about the Hepatitis B Birth Dose Honor Roll is available at

<http://www.immunize.org/honor-roll/birthdose/>.

Hepatitis B Birth Dose Honor Roll - 2017

Congratulations to the following Iowa hospitals for their inclusion in IAC's Hepatitis B Birth Dose Honor Roll for 2017:

Myrtue Medical Center, Harlan

- Coverage rate of 94% from 7/1/2012 - 6/30/2013
- Coverage rate of 96% from 7/1/2013 - 6/30/2014
- Coverage rate of 94% from 3/1/2015 - 2/29/2016
- Coverage rate of 94% from 4/5/2015 - 4/5/2017

St. Anthony Regional Hospital, Carroll

- Coverage rate of 97% from 1/1/2012 - 12/31/2013
- Coverage rate of 96% from 1/1/2014 - 11/30/2015
- Coverage rate of 97% from 1/1/2016 - 12/31/2016
- Coverage rate of 98% from 1/1/2017 - 12/31/2017

Unity Point-Grinnell Regional Medical Center, Grinnell

- Coverage rate of 96% from 1/1/2016 to 12/31/2016
- Coverage rate of 97% from 1/1/2017 to 12/31/2017

High-Risk Adult Hepatitis B Program

The Immunization Program collaborates with the Hepatitis Program to provide hepatitis A and hepatitis B vaccine for high-risk patients seen at nine Counseling, Testing, and Referral (CTR) sites. High-risk patients include injection drug users, men who have sex with men, persons with a current sexually transmitted disease diagnosis, human immunodeficiency virus (HIV) or hepatitis C, and sexual partners of persons infected with HIV, hepatitis A or hepatitis B. In 2017, the Immunization Program distributed 820 doses of adult hepatitis A/hepatitis B vaccine (Twinrix) to CTR sites; 724 doses have been administered to clients. This difference between the number of doses distributed versus administered is a result of doses distributed in 2016 not being administered until 2017.

Immunization Assessments

Immunization assessments serve as a means to evaluate immunization practices and progress towards achieving established goals. Immunization records are assessed to determine the percentage of patients who are age-appropriately vaccinated consistent with the recommended Advisory Committee on Immunization Practices (ACIP) immunization schedule. Immunization assessment data are used to improve health care providers' standard immunization practices and immunization delivery systems, and to guide strategies and policies, which directly impact the overall immunization rates of their patients.

County and State Immunization Rates

The Immunization Program uses data from IRIS to calculate county and state immunization rates for 2-year-old children and adolescents 13-15 years of age. This data provides immunization rates based upon a standard vaccination series identified by the ACIP and the CDC.

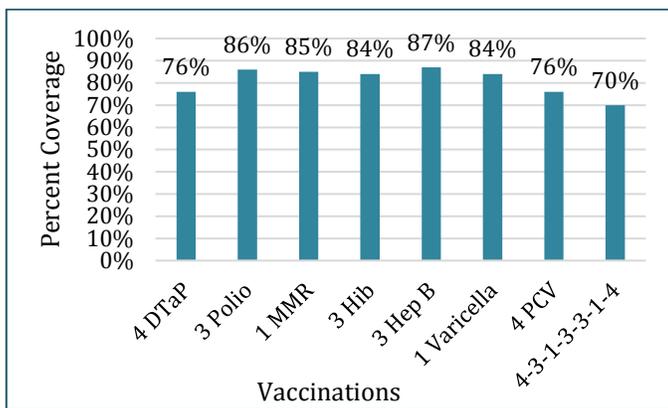
The report includes patients served by both public and private health care providers with a

record in IRIS that have a ZIP code and are an "active" patient within a health care provider organization. A patient's status becomes active in an organization when an immunization is administered or when the health care provider selects this status on a patient record. The report for each age group includes the number of records meeting the assessment criteria and the corresponding percentage of records in IRIS.

2-Year-Old Immunization Rates

The 2-year-old county immunization rate for the 4-3-1-3-3-1-4 series (4 DTaP, 3 Polio, 1 MMR, 3 Hib, 3 Hep B, 1 Varicella, 4 PCV by 24 months of age) ranges from 43 to 87 percent, with a state immunization rate of 70 percent. The state immunization rate includes the assessment of 40,040 patient records (Table 5). The Iowa Immunization Program strives to meet the Healthy People 2020 Goal of 80%. Healthy People 2020 goals for immunization are based on activities and services for the prevention of infectious diseases.

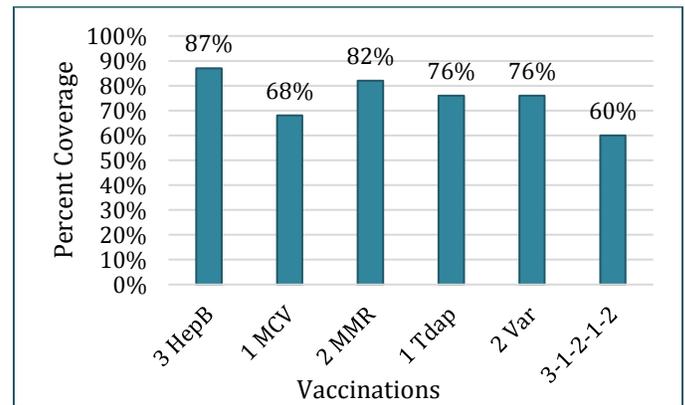
Figure 5: 2 Year-Old Immunization Rates of Individual Vaccines and Selected Vaccination Series



Adolescent 13-15-Year-Old Immunization Rates

The adolescent, 13-15-year-old, county immunization rate for the 3-1-2-1-2 (3 Hep B, 1 Meningococcal, 2 MMR, 1 Td or Tdap, 2 Varicella) series ranges from 37 to 79 percent, with an average state immunization rate of 60 percent. The state immunization rate includes the assessment of 140,931 patient records.

Figure 6: 13-15 Year-Old Immunization Rates of Individual Vaccines and Selected Vaccination Series



The county immunization rate for HPV vaccine received by adolescent girls, ages 13-15, ranges from 18 to 66 percent, with an average state immunization rate of 42 percent. The county immunization rate for HPV vaccine received by adolescent males, ages 13-15, ranges from 15 to 64 percent, with an average state immunization rate of 36 percent (Table 6). The Iowa Immunization Program strives to meet the Healthy People 2020 Goal of 80%.

Human Papillomavirus (HPV) Immunization Rates among Adolescents

Every year, HPV causes approximately 31,500 cancers in the United States, which includes an estimated 262 Iowans. In fact, HPV-related cancers kill more people every year than polio, measles, tetanus and chickenpox combined before vaccines for these diseases were developed. The good news is over 80 percent of these cancers can be prevented with the HPV vaccine. Vaccinating adolescents now with HPV vaccine will provide protection throughout their lives.



In 2017, HPV vaccination rates in Iowa continued to increase; however, only 38 percent of adolescents aged 13-15 have received a complete series of HPV vaccine recommended for full protection. In comparison, 76 percent of 13-15 year-olds in Iowa have received the Tdap vaccine, which protects against tetanus, diphtheria and pertussis. A gender disparity exists for HPV coverage. Forty-two percent of girls aged 13-15 have completed the HPV series compared to 36 percent boys of the same age. Yet, more males started the series but did not complete it compared to girls (17 percent compared to 16 percent).

The IDPH Immunization Program continues work on the following initiatives to increase HPV vaccination rates of adolescent Iowans:

- Partnering with the Iowa Cancer Consortium HPV Workgroup to increase HPV vaccination rates in Iowa through health care provider education. Providers play a crucial role in improving the uptake of this life-saving vaccine.
- Maintaining a comprehensive communication campaign targeted to the public, with emphasis on reaching parents/guardians of children aged 11–18 years.
- Promoting educational materials targeting health care providers to encourage HPV vaccination consistent with other recommended adolescent vaccines.
- Utilizing existing IRIS tools (benchmark, assessment coverage reports) to evaluate current HPV vaccine coverage levels by county/provider and conduct reminder/recall activities to increase HPV vaccine coverage rates.
- Using assessment and feedback (AFIX) site visits to evaluate the performance of providers in administering the HPV vaccine series consistent with current ACIP recommendations and present this information to providers to guide changes, if needed, in their clinical practices.
- Tracking HPV vaccine coverage by county for both boys and girls.

Human Papillomavirus (HPV) Survivor Videos

The Iowa Department of Public Health Immunization Program created a series of videos showing the impact of HPV-associated cancer on Iowans. Their stories put faces to HPV-associated cancers, while their struggles reinforce the importance of prevention. Survivors share a common theme of never wanting another person to experience what they have gone through and their struggles emphasize the importance of receiving HPV vaccine. Hear the stories of four Iowa HPV cancer survivors whose lives were changed forever. HPV vaccine is the Key to Cancer Prevention.

Full HPV Video - <https://youtu.be/lwUPu4vS8OI>

Emily - <https://youtu.be/jR8aJEyrkp8>

Jon - <https://youtu.be/UskIETAMfXM>

Shawna - <https://youtu.be/izmlhz1rWzY>

Steve - <https://youtu.be/m8CcEZtYk60>

Conclusion

The Immunization Program's vision is healthy Iowans in communities free of vaccine-preventable diseases. From smallpox to chickenpox, we have the ability to protect Iowans of all ages from deadly infectious diseases. Iowa health care providers are essential to promote vaccines and provide sound science-based immunization education to their patients. The most significant factor in a parent's decisions to vaccinate their child is a strong recommendation by the health care provider. When a provider offers a strong and clear recommendation, patients are four to five times more likely to be vaccinated.

The IDPH Immunization Program is committed to promoting immunizations through the implementation of strategies to achieve and maintain high vaccination levels. We cannot rest on our past achievements and successes, but must remain diligent to protect and improve the health of Iowans against vaccine-preventable diseases. Disease outbreaks across the U.S. in recent years illustrates many Americans are not taking advantage of opportunities to protect themselves, their families and their communities from preventable diseases. Vaccines are essential tools in preventing devastating disease outbreaks. The Iowa Immunization Program remains committed to working with stakeholders across the state to ensure all Iowans are aware of, and have access to, life-saving vaccines. Vaccines prevent diseases and save lives. Immunize for a better life.

Tables and Maps

Table 4: Iowa Department of Public Health, Immunization Program
2017 County Immunization Assessment
2 Year-Old Coverage of Individual Vaccines and Selected Vaccination Series

County	Total Records Analyzed from IRIS ¹	4 DTaP Coverage Percent	3 Polio Coverage Percent	1 MMR Coverage Percent	3 Hib Coverage Percent	3 Hep B Coverage Percent	1 Varicella Coverage Percent	4 PCV Coverage Percent	Up-To-Date 4-3-1-3-3-1-4 Coverage Percent ²
State	40,404	76	86	85	84	87	84	76	70
Adair	57	82	89	88	84	91	86	84	82
Adams	36	78	89	92	92	92	92	81	75
Allamakee	178	80	90	88	89	87	87	79	70
Appanoose	144	73	86	82	78	86	84	66	62
Audubon	70	79	91	93	84	90	90	79	73
Benton	324	81	86	85	85	85	86	81	75
Black Hawk	1,770	81	92	85	88	92	84	82	75
Boone	267	79	91	88	90	91	88	85	75
Bremer	317	90	94	92	93	94	93	93	87
Buchanan	248	86	94	90	92	94	90	88	82
Buena Vista	260	79	91	89	87	90	89	78	73
Butler	154	90	95	93	94	94	92	85	81
Calhoun	129	86	93	93	93	95	91	87	83
Carroll	267	82	91	89	91	90	88	82	78
Cass	156	78	87	85	79	87	86	79	75
Cedar	202	80	90	87	87	89	84	81	75
Cerro Gordo	423	88	96	95	94	95	95	87	86
Cherokee	145	77	89	91	87	91	90	76	70
Chickasaw	129	77	89	86	88	90	86	79	72
Clarke	130	81	92	85	85	94	85	81	75
Clay	189	84	94	94	89	95	94	89	81
Clayton	182	81	90	90	90	91	90	82	76
Clinton	628	75	91	85	89	91	84	75	67
Crawford	264	71	88	86	84	90	85	73	64
Dallas	873	86	91	89	89	92	89	85	82

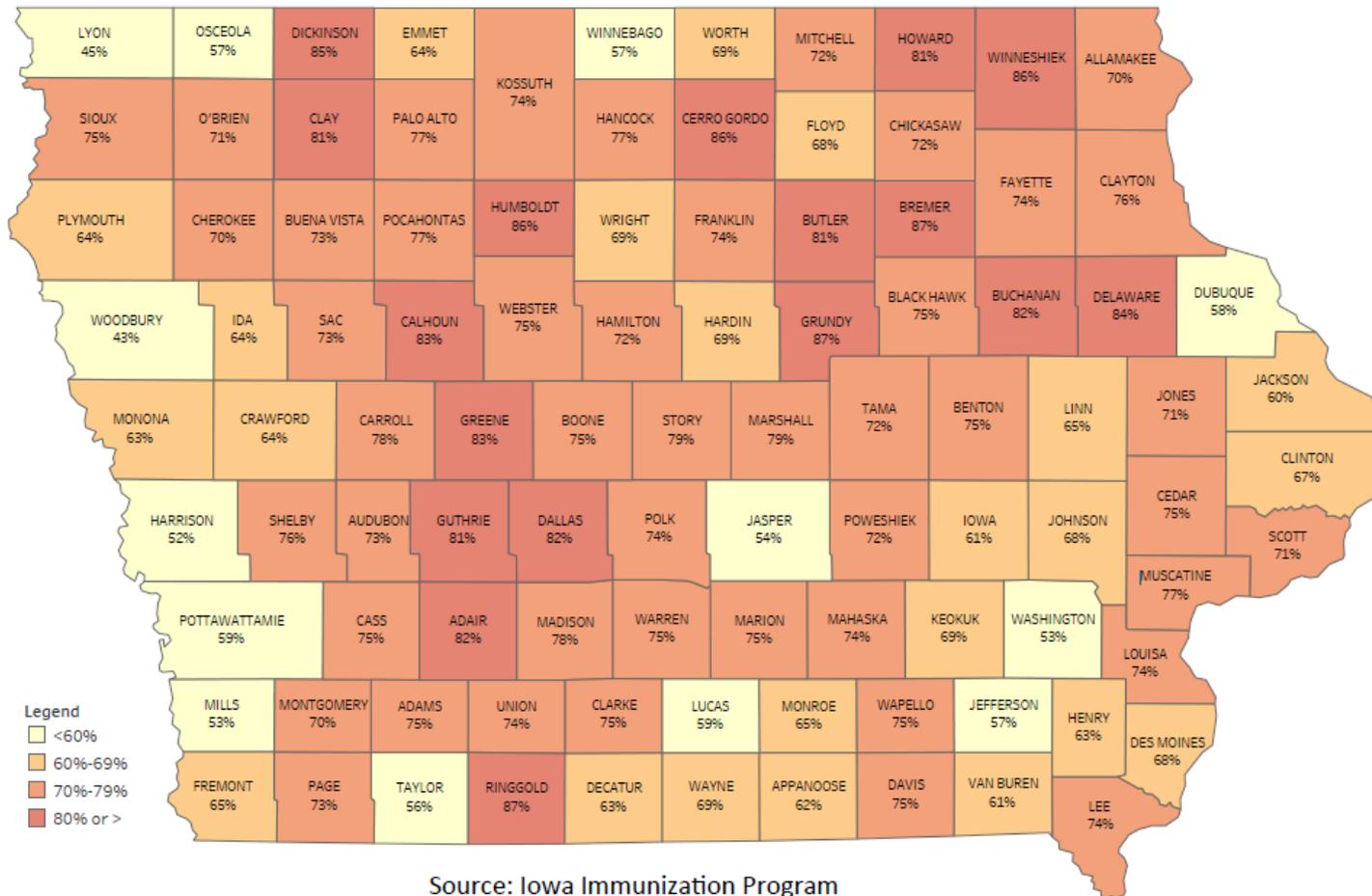
¹ Data retrieved from Iowa's Immunization Registry Information System (IRIS) by county zip codes and with a status of active in an organization.

² Up-To-Date include children who have completed the 4 DTaP, 3 Polio, 1 MMR, 3 Hib, 3 Hep B, 1 Varicella, 4 PCV by 24 months of age.

County	Total Records Analyzed from IRIS ¹	4 DTaP Coverage Percent	3 Polio Coverage Percent	1 MMR Coverage Percent	3 Hib Coverage Percent	3 Hep B Coverage Percent	1 Varicella Coverage Percent	4 PCV Coverage Percent	Up-To-Date 4-3-1-3-3-1-4 Coverage Percent ²
Davis	85	87	91	94	91	91	91	82	75
Decatur	83	71	81	80	78	84	76	72	63
Delaware	202	87	90	93	90	89	91	86	84
Des Moines	504	74	89	84	87	90	84	75	68
Dickinson	183	88	97	95	94	96	95	89	85
Dubuque	1,242	64	78	76	72	79	75	67	58
Emmet	106	75	91	85	83	92	85	68	64
Fayette	205	79	92	88	89	91	86	81	74
Floyd	198	74	89	88	85	90	87	72	68
Franklin	106	80	98	93	96	97	92	79	74
Fremont	80	75	86	91	88	85	91	71	65
Greene	108	89	95	93	94	95	94	86	83
Grundy	123	91	98	95	97	98	94	89	87
Guthrie	125	85	95	94	90	97	94	82	81
Hamilton	199	77	90	89	85	90	86	75	72
Hancock	136	83	97	93	94	95	93	84	77
Hardin	233	76	91	91	91	92	89	77	69
Harrison	147	63	72	71	71	67	69	60	52
Henry	266	71	86	84	80	89	83	70	63
Howard	120	88	95	94	94	94	94	82	81
Humboldt	124	89	95	94	93	97	93	89	86
Ida	81	70	86	89	86	86	88	73	64
Iowa	197	66	80	76	80	78	75	70	61
Jackson	229	67	84	80	80	81	81	69	60
Jasper	434	62	73	79	71	72	80	61	54
Jefferson	145	65	81	84	80	79	83	62	57
Johnson	1,862	73	80	81	80	80	79	72	68
Jones	206	82	90	85	89	87	82	80	71
Keokuk	125	75	85	86	82	85	82	74	69
Kossuth	151	77	95	93	93	93	93	77	74
Lee	423	79	93	89	89	93	87	79	74
Linn	3,092	71	80	78	77	78	78	70	65
Louisa	138	78	91	86	88	91	84	80	74
Lucas	88	67	85	82	81	83	81	64	59
Lyon	139	48	61	55	60	61	54	45	45
Madison	187	82	94	90	87	93	88	82	78
Mahaska	291	78	90	85	89	89	86	77	74
Marion	332	80	90	86	89	90	88	80	75
Marshall	515	84	92	91	91	93	91	83	79
Mills	141	60	69	69	71	67	68	60	53
Mitchell	111	84	91	90	91	95	89	74	72

County	Total Records Analyzed from IRIS ¹	4 DTaP Coverage Percent	3 Polio Coverage Percent	1 MMR Coverage Percent	3 Hib Coverage Percent	3 Hep B Coverage Percent	1 Varicella Coverage Percent	4 PCV Coverage Percent	Up-To-Date 4-3-1-3-3-1-4 Coverage Percent ²
Monona	98	68	79	90	78	85	90	70	63
Monroe	79	81	86	82	85	82	81	75	65
Montgomery	118	80	90	87	89	88	86	73	70
Muscatine	561	81	90	88	88	92	86	82	77
O'Brien	207	75	88	86	88	89	85	74	71
Osceola	60	70	83	80	83	78	78	63	57
Page	190	81	91	87	89	89	87	79	73
Palo Alto	114	82	91	89	89	92	88	81	77
Plymouth	318	69	81	90	78	87	88	71	64
Pocahontas	86	83	93	92	91	92	91	84	77
Polk	7,678	79	88	86	84	88	85	78	74
Pottawattamie	1,058	68	81	80	81	80	79	67	59
Poweshiek	200	77	87	85	87	88	85	76	72
Ringgold	46	87	98	96	98	100	93	91	87
Sac	110	76	91	87	88	92	86	79	73
Scott	2,271	77	89	86	86	90	85	76	71
Shelby	99	81	91	88	84	91	88	79	76
Sioux	525	80	91	88	89	91	87	80	75
Story	965	82	89	87	88	87	86	83	79
Tama	260	77	90	89	86	92	88	77	72
Taylor	80	64	85	81	79	86	81	61	56
Union	132	78	91	91	91	92	87	78	74
Van Buren	61	70	89	90	84	90	87	72	61
Wapello	459	79	93	89	87	93	88	78	75
Warren	620	82	90	90	86	92	89	80	75
Washington	315	62	77	74	74	76	71	63	53
Wayne	62	79	89	92	89	90	92	76	69
Webster	460	80	92	90	89	93	89	83	75
Winnebago	129	78	89	85	88	74	86	71	57
Winneshiek	173	88	94	92	94	95	91	90	86
Woodbury	1,602	48	59	82	55	67	82	47	43
Worth	78	79	87	90	88	78	88	76	69
Wright	186	76	91	90	89	91	91	80	69

Figure 7: 2017 County Immunization Assessment Map
2 Year-Old Coverage of Selected Vaccination Series³
4 DTaP, 3 Polio, 1 MMR, 3 Hib, 3 Hep B, 1 Varicella, 4 PCV Vaccine Series



Source: Iowa Immunization Program

³ Immunization coverage for 4 DTaP, 3 Polio, 1 MMR, 3 Hib, 3 Hep B, 1 Varicella, 4 Pneumococcal (PCV) vaccine series by 24 months of age.

**Table 5: Iowa Department of Public Health, Immunization Program
2017 County Adolescent Immunization Assessment
13-15 Year-Old Coverage of Individual Vaccines and Selected Vaccination Series**

County	Total Records Analyzed from IRIS ⁴	3 Hep B Coverage Percent	1 Meningitis Coverage Percent	2 MMR Coverage Percent	1 Td/Tdap Coverage Percent	2 Varicella Coverage Percent	Up-to-Date 3-1-2-1-2 Coverage Percent ⁵	HPV Complete All Genders Coverage Percent	HPV Complete Female Coverage Percent	HPV Complete Male Coverage Percent
State	140,931	87	68	82	76	76	60	38	42	36
Adair	249	93	86	92	89	87	79	64	66	64
Adams	126	94	71	85	77	81	65	40	44	36
Allamakee	581	90	61	83	69	66	50	33	39	29
Appanoose	498	89	62	88	80	75	51	21	29	14
Audubon	191	95	74	90	84	86	70	48	53	45
Benton	1,023	89	77	85	82	81	68	50	56	44
Black Hawk	5,241	94	77	91	81	86	72	48	53	44
Boone	1,019	92	77	89	85	85	71	43	44	44
Bremer	1,020	94	84	91	89	88	75	55	56	53
Buchanan	968	89	75	87	88	81	70	47	53	42
Buena Vista	1,142	87	50	78	67	68	43	20	24	18
Butler	603	92	78	92	89	86	70	50	57	44
Calhoun	379	94	73	91	83	85	68	31	35	28
Carroll	870	92	70	88	84	82	63	29	34	24
Cass	579	95	80	89	81	87	76	50	52	48
Cedar	685	92	73	89	83	82	65	40	40	41
Cerro Gordo	1,466	93	77	88	83	83	71	43	45	43
Cherokee	402	92	76	89	82	86	71	36	39	34
Chickasaw	460	92	78	92	86	88	72	47	46	48
Clarke	428	89	75	88	81	85	68	39	44	35
Clay	668	92	71	85	80	78	62	39	39	38
Clayton	563	80	59	72	77	63	45	29	33	28
Clinton	1,942	90	63	87	82	78	56	30	35	27
Crawford	846	91	63	83	72	73	54	31	36	28
Dallas	2,157	87	77	84	82	79	68	45	51	42
Davis	300	92	57	85	74	75	52	16	18	15
Decatur	267	85	52	81	76	72	47	22	28	18

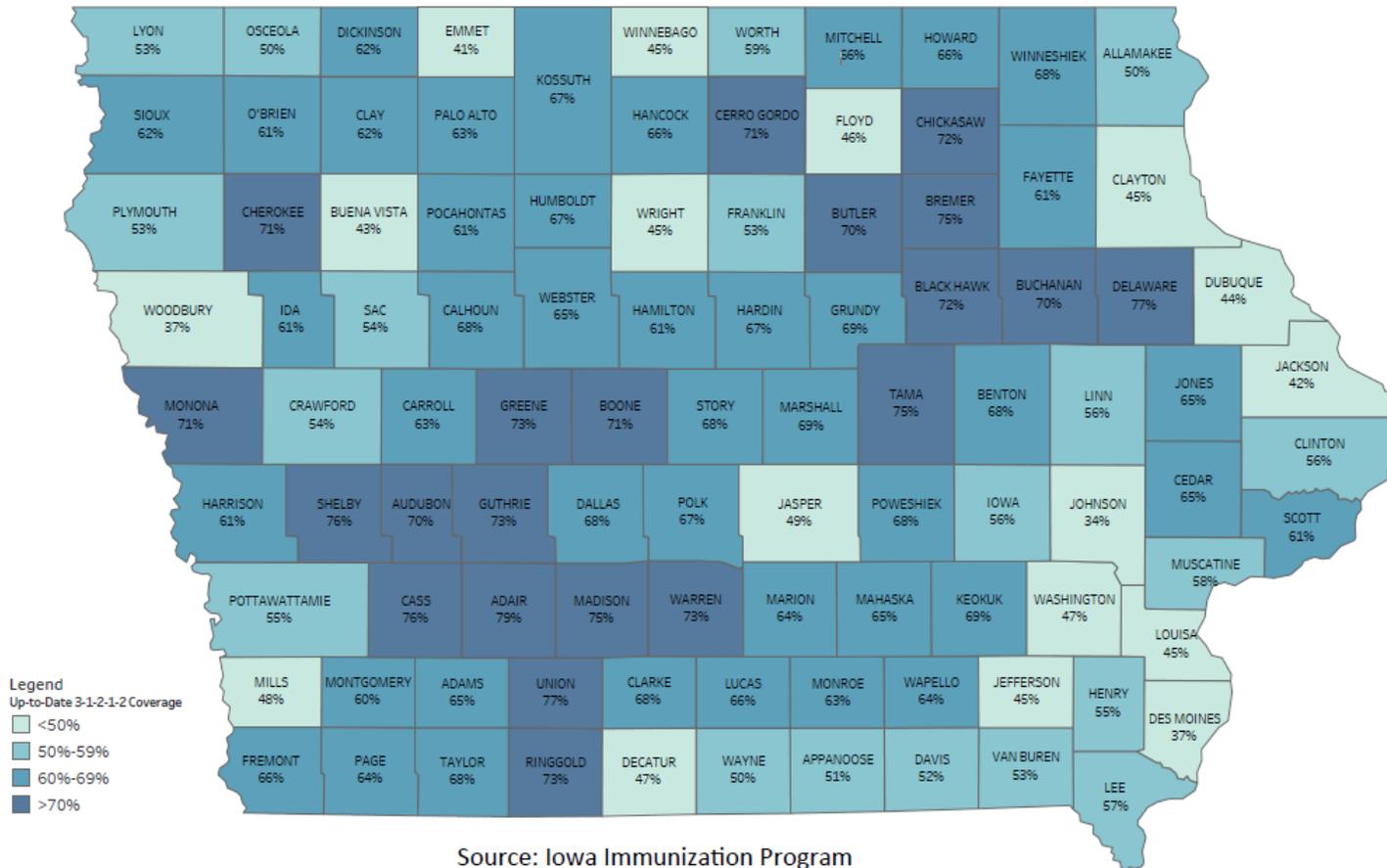
⁴ Data retrieved from Iowa's Immunization Registry Information System (IRIS) by county zip codes and with a status of Active in an organization.

⁵ "Up-to-Date" refers to adolescents 13- to 15-years who have completed the 3 Hep B, 1 Meningococcal, and 2 MMR, 1 Td or Tdap and 2 Varicella series.

County	Total Records Analyzed from IRIS ⁴	3 Hep B Coverage Percent	1 Meningitis Coverage Percent	2 MMR Coverage Percent	1 Td/Tdap Coverage Percent	2 Varicella Coverage Percent	Up-to-Date 3-1-2-1-2 Coverage Percent ⁵	HPV Complete All Genders Coverage Percent	HPV Complete Female Coverage Percent	HPV Complete Male Coverage Percent
Delaware	682	95	83	94	90	87	77	48	51	46
Des Moines	1,595	88	45	81	69	72	37	20	23	17
Dickinson	615	93	65	89	78	82	62	43	40	45
Dubuque	3,467	77	52	68	63	65	44	25	27	24
Emmet	407	78	55	71	76	58	41	31	33	29
Fayette	745	92	67	89	81	84	61	39	49	32
Floyd	596	87	56	83	76	66	46	30	32	30
Franklin	405	90	61	85	79	78	53	34	37	32
Fremont	275	91	70	86	75	82	66	37	42	34
Greene	426	94	80	90	86	83	73	44	45	43
Grundy	444	92	77	93	88	87	69	42	48	38
Guthrie	514	93	78	90	85	85	73	53	54	54
Hamilton	670	95	66	93	86	87	61	40	47	34
Hancock	426	93	71	89	82	82	66	33	36	31
Hardin	764	91	73	89	83	86	67	36	38	35
Harrison	666	88	69	86	73	82	61	42	49	40
Henry	834	92	62	86	80	79	55	26	30	24
Howard	388	90	74	88	83	78	66	42	47	37
Humboldt	425	90	74	88	84	82	67	46	52	44
Ida	268	91	70	88	83	77	61	31	34	29
Iowa	620	87	69	86	77	74	56	31	35	29
Jackson	696	89	51	86	87	76	42	20	21	19
Jasper	1,357	75	69	69	73	66	49	30	34	26
Jefferson	429	82	58	78	77	69	45	25	31	19
Johnson	4,035	70	54	64	58	56	34	35	37	34
Jones	768	85	77	81	82	77	65	34	39	30
Keokuk	405	91	77	91	85	86	69	39	43	34
Kossuth	577	94	74	90	80	81	67	41	46	37
Lee	1,287	89	63	83	77	78	57	33	35	31
Linn	9,226	81	67	75	72	70	56	40	43	38
Louisa	461	86	55	81	76	69	45	32	33	31
Lucas	316	91	76	90	86	82	66	40	41	38
Lyon	447	77	61	75	69	68	53	23	30	17
Madison	743	93	85	92	89	86	75	47	51	45
Mahaska	810	92	75	91	82	83	65	30	34	27
Marion	1,413	90	73	87	82	82	64	30	36	26
Marshall	1,964	94	73	89	77	84	69	52	58	51
Mills	601	73	63	71	69	65	48	30	32	30
Mitchell	352	90	72	89	81	81	66	42	49	35
Monona	363	91	75	88	81	84	71	51	55	48

County	Total Records Analyzed from IRIS ⁴	3 Hep B Coverage Percent	1 Meningitis Coverage Percent	2 MMR Coverage Percent	1 Td/Tdap Coverage Percent	2 Varicella Coverage Percent	Up-to-Date 3-1-2-1-2 Coverage Percent ⁵	HPV Complete All Genders Coverage Percent	HPV Complete Female Coverage Percent	HPV Complete Male Coverage Percent
Monroe	282	86	72	87	83	82	63	36	43	29
Montgomery	427	86	68	83	74	78	60	32	39	27
Muscatine	1,959	87	66	85	80	79	58	35	41	32
O'Brien	623	91	68	87	79	79	61	43	44	43
Osceola	266	88	53	85	75	80	50	35	38	34
Page	641	91	72	85	78	81	64	39	40	40
Palo Alto	417	96	70	92	81	84	63	34	36	33
Plymouth	1,030	83	64	79	78	74	53	34	40	29
Pocahontas	265	86	72	85	82	78	61	39	47	32
Polk	21,767	88	75	83	80	80	67	42	46	40
Pottawattamie	3,643	81	65	77	70	73	55	39	42	37
Poweshiek	692	91	76	88	84	82	68	49	52	48
Ringgold	175	93	77	91	82	85	73	46	50	43
Sac	348	87	65	85	82	72	54	35	39	30
Scott	7,888	88	66	83	74	78	61	35	38	34
Shelby	496	96	81	94	85	86	76	47	47	49
Sioux	1,654	92	69	89	81	81	62	33	34	32
Story	3,061	92	74	88	82	84	68	42	46	42
Tama	847	93	81	89	85	86	75	49	48	51
Taylor	277	90	76	87	79	82	68	48	49	47
Union	545	93	83	91	84	84	77	45	52	40
Van Buren	287	86	59	84	78	74	53	23	25	21
Wapello	1,643	88	69	83	75	79	64	35	39	33
Warren	2,075	90	81	88	87	84	73	42	46	39
Washington	888	83	60	80	72	66	47	33	35	32
Wayne	252	89	60	86	88	78	50	35	38	31
Webster	1,600	92	70	88	80	84	65	35	42	31
Winnebago	468	78	57	74	74	67	45	25	26	27
Winneshiek	700	92	76	89	85	81	68	53	60	49
Woodbury	4,450	71	54	57	56	54	37	35	38	33
Worth	283	92	67	84	82	77	59	34	37	31
Wright	603	91	49	85	79	79	45	25	27	22

Figure 8: 2017 County Immunization Assessment Map
 13-15 Year-Old Coverage of Selected Vaccination Series ⁶
 3 Hep B, 1 Meningitis, 2 MMR 1 Td/Tdap, 2 Varicella Vaccine Series



⁶Immunization coverage for 3 Hep B, 1 Meningitis, 2 MMR, 1 Td or Tdap and 2 Varicella vaccine series.

Appendix A: Immunization Program Directory

Immunization Program Directory			
Don Callaghan	Bureau Chief	515-281-7301	Donald.Callaghan@idph.iowa.gov
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Marnell Kretschmer	CDC Public Health Advisor	515-281-4917	Marnell.Kretschmer@idph.iowa.gov
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IRIS Help Desk 1-800-374-3958			
Kim Tichy	IRIS Coordinator	515-281-4288	Kimberly.Tichy@idph.iowa.gov
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Cindy Oliver	IRIS Help Desk Staff	515-281-6983	Cindy.Oliver@idph.iowa.gov
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Immunization Assessments			
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Sharon Monroe	Assessments/Nurse Consultant	515-473-2473	Sharon.Monroe@idph.iowa.gov
Alison Van De Pol	Assessments/Nurse Consultant	515-494-4442	Alison.VanDePol@idph.iowa.gov
John Fiedler	Assessments/Nurse Consultant	515-954-9859	John.Fiedler@idph.iowa.gov
Kelli Smith	Assessments/Nurse Consultant	515-318-9530	Kelli.Smith@idph.iowa.gov
Phone: 1-800-831-6293	www.idph.iowa.gov/immtb/immunization		Fax: 1-800-831-6292

Appendix B: Acronyms

ACIP: Advisory Committee on Immunization Practices
AFIX: Assessment, Feedback, Incentive and eXchange
BETS: Bureau of Emergency and Trauma Services
CDC: Centers for Disease Control and Prevention
DXC: Vendor supporting Iowa's immunization information system
EMSC: Emergency Medical Services for Children
HPV: Human Papillomavirus
HRSA: Health Resources and Services Administration
IDPH: Iowa Department of Public Health
IIS: Immunization Information System
IRIS: Immunization Registry Information System
PPHF: Federal Prevention and Public Health Funds
VFC: Vaccines for Children Program
WIC: Women Infants and Children

4-3-1-3-3-1-4 series:

4 doses DTaP, 3 doses Polio, 1 dose MMR, 3 doses Hib, 3 doses Hepatitis B, 1 dose Varicella, and 4 doses PCV by 24 months of age

3-1-2-1-2 series: 3 doses Hepatitis B, 1 dose Meningitis, 2 doses MMR, 1 dose Td or Tdap and 2 doses Varicella vaccine series

List of vaccines and antigens:

DT	HPV
DTaP	IPV
DTaP-IPV (Kinrix)	MMR
DTaP-IPV/Hib (Pentacel)	MMR-Varicella (MMRV)
DTaP-IPV-Hep B (Pediarix)	MCV
Tdap	Men B
Td	PCV 13
Hep A	PPSV
Hep B	Rotavirus
Hep A-Hep B (Twinrix)	Varicella
Hib	Influenza